Impacts and Benefits Related to Capping Soft Sediments in a Refinery Wastewater Settlement Pond: Soda Lake, Wyoming. Christian E. Houck, P.E., Timothy Thompson, Anne Fitzpatrick. The RETEC Group, Inc. Seattle, Washington.

Seldom does the opportunity to preserve a wildlife refuge arise as part of a remedial action. Located near Casper Wyoming, in Natrona County, Soda Lake presented this opportunity. Created as an unexpected benefit during management of an oil refinery's wastewater, Soda Lake supports a unique local habitat, considered one of the most important habitats in Wyoming for migrating birds. The site consists primarily of two water bodies, an inlet basin (44 acres), the primary recipient of former wastewater discharge, and the main lake (621 acres of open water) used for overflow. Operated as a wastewater management system from 1956-1990, Soda Lake stopped receiving wastewater discharge when the refinery closed in 1990. From 1990 to present, the artificially created habitat is maintained by pumping 1.7 million gallons/day of North Platte River water into its system. This has resulted in the growth of 11 acres of wetlands, providing additional habitat. Now moderately briney (2 – 3 ppt salts), this former playa evaporation lake contains large stands of pondweed (Potomogeton sp.) supporting a myriad number of aquatic insects, daphnids, copepods and other invertebrates. Today, there are over 300 different species of birds recorded at Soda Lake. The lake provides foraging and nesting habitat to multiple species of cranes, stilts, avocets, waterfowl and raptors, including three threatened and endangered species.